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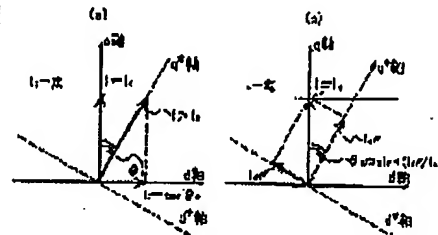
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(54) CONTROLLER FOR PERMANENT MAGNET SYNCHRONOUS MOTOR

(57)Abstract:

PROBLEM TO BE SOLVED: To precisely correct the phase with a simple constitution by controlling d-axis current, so that the current of an armature becomes minimum when load torque is constant and correcting the rotary position of a magnetic pole.

SOLUTION: In a device, a current I of an armature becomes equal to I_q and becomes minimum, when a d-axis current command I_d^* is controlled to be zero, when a phase error θ_e does not exist when load torque is constant. However, if the phase error θ_e to exist, a d-axis current of $I_d = I_q \tan \theta_e$ flows, if it is controlled to $I_d = 0$. Thus, it becomes $I > I_q$, and the current of the armature does not become minimum. Thus, the d-axis current command I_d^* is controlled, the current of the armature is changed, and a minimum value I_{min} is searched. The current I_{min} of the armature at the time of the minimum value is considered to be the q-axis current I_q , when the error does not exist. The error θ_e is calculated from the d-axis current command value I_{d1}^* at that time. Then, phase correction is made precisely with a simple constitution, and the device can be driven without dropping the characteristic of a permanent magnet synchronous motor.



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